MAINE PUBLIC HEALTH ALERT NETWORK SYSTEM

Maine Department of Health and Human Services
Maine Center for Disease Control and Prevention (Maine CDC)
(Formerly Bureau of Health)
11 State House Station
Augusta, Maine 04333-0011
Phone 1-800-821-5821 / Fax 207-287-7443

ADVISORY – Important Information*

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TO: All Epidemiologists, All Local Public Health Liaisons, HETL, All City & County Health Departments, All Healthcare Roles, All Lab Facilities, All Required Groups

FROM: Dora Anne Mills, M.D., M.P.H., Public Health Director
Stephen Sears, M.D., M.P.H., State Epidemiologist

SUBJECT: **Human Arbovirus Update for Healthcare Providers in Maine, 2010**

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Human Arbovirus Update for Healthcare Providers in Maine, 2010

Arboviral infections including Eastern equine encephalitis (EEE) and West Nile Virus (WNV) are very serious viral infections that are transmitted by the bite of an infected mosquito. Although rare, these diseases have potentially severe and even fatal consequences for those who contract them. Because both of these diseases are seen primarily in the later summer and fall, and have been detected in animals here in Maine, the purpose of this health advisory is to alert clinicians to the potential for human disease activity.

West Nile virus (WNV) was first detected in Maine in 2001 in birds. Eastern equine encephalitis (EEE) was also first identified here in a bird in 2001. Last year Maine experienced unprecedented EEE activity with 19 animals and 2 mosquito pools testing positive. Positives were detected in York, Cumberland, Kennebec, Waldo and Penobscot counties. In the fall of 2008 a man vacationing in Cumberland County and in New Hampshire died of the disease. It is unclear which location he contracted the infection.

Clinical Features of Mosquito-borne Infections

WNV: The incubation period for WNV in humans ranges from 2 to 15 days. However, most people infected with WNV do not show any symptoms. Mild WNV infections can cause fever, headache and body aches, often with a skin rash and swollen lymph glands. More severe infections can cause headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, paralysis and, sometimes, death.

EEE: Symptoms of EEE usually appear 3 to 10 days after the bite of an infected mosquito, and range from mild flu-like illness to encephalitis, coma, and death. The EEE case fatality rate is about 35%-50%. It is estimated that 35% of people who survive EEE will have residual neurological deficits.

Risk Groups

WNV and EEE infect many more people than are recognized because many people remain asymptomatic. However, diagnosed cases tend to exhibit more severe illness, potentially leading to death. The following groups of people are at relatively higher risk for clinically significant WNV and EEE infection:

- Residents of and visitors to areas with mosquito activity
- People who engage in outdoor work and recreational activities
- Persons over age 50 (WNV and EEE) and younger than age 15 (EEE)

Diagnostic Tests for WNV and EEE Infections

Clinical Suspicion: Diagnosis relies on a high index of suspicion and on results of specific laboratory tests. EEE, WNV or other arboviral infections should be seriously considered in any individual – but especially those over age 50 or younger than age 15 - who has onset of unexplained encephalitis, meningitis, or high fever in the late summer or early fall. The local presence of EEE and WNV in animals and mosquito pools should further raise the index of suspicion.

Laboratory Tests: Laboratory testing is required for a confirmed diagnosis. The recommended diagnostic methods are listed below:

- Detection of IgM antibody in serum collected 3-10 days after onset of illness (note: if a specimen collected less than 10 days after onset of illness is negative, a convalescent serum should be collected and tested for IgM antibody 2-3 weeks after the first collection date).
- Detection of IgM antibody in cerebrospinal fluid collected 3 to 10 days after onset of illness (for persons with meningitis or encephalitis).

Because many other viral pathogens can cause indistinguishable clinical presentations, it is recommended that CSF specimens be screened for Enterovirus, Herpes Simplex Types 1 and 2, and Varicella Zoster Virus. These tests are available as a CSF panel through the Health and Environmental Testing Laboratory (HETL), as well as commercial labs. If the CSF specimen is sent to HETL and tests negative for the three more common causes of viral meningitis, the arboviral panel will automatically be run if the arboviral submission form is completed.

Specimens that are positive for any arbovirus by the IgM screening test at HETL are sent to the federal CDC in Fort Collins for confirmatory testing using the plaque-reduction neutralization (PRNT) technique. PRNT is the current gold standard for ruling out possible false positive results and in distinguishing cross-reactions that can occur between different infections.

Although there is a fee for the CSF panel, diagnostic testing of serum and CSF for WNV and EEE is available free of charge through HETL. To ensure early public health identification of mosquito-borne human disease, Maine CDC requests that specimens from all patients who are being tested for WNV and EEE infection be submitted to HETL (even if specimens are also being sent to commercial laboratories.)

Instructions for submitting a specimen and algorithms for testing are available at:
http://www.maine.gov/dhhs/etl/micro/submitting_samples.htm

For more information please see Maine CDC's vectorborne website at
http://www.maine.gov/dhhs/boh/ddc/epi/vector-borne/index.shtml or call the Maine CDC disease reporting and consultation line 24 x 7 at 1-800-821-5821.